TUBERCULOSIS IN NEBRASKA – 2005

Introduction

Tuberculosis (TB), an infectious disease caused by the bacterium *Mycobacterium tuberculosis*, is one of the leading infectious causes of death in the world today. In the United States (US), TB was the leading cause of death in 1900. With the advent of effective treatment, the US experienced a steady decline in cases until the mid-1980s. A resurgence of TB occurred at that time, with national case rates peaking in the early 1990s. Through extensive public health interventions at the national, state, and local levels, Tuberculosis is once again on the decline. However in 2003, 2004, and 2005 the decline has slowed, raising the concern that we may once again experience a resurgence. National TB organizations are advocating for research to develop new diagnostic tools and drugs to use to fight Tuberculosis, and adequate funding, in order to continue the trend to eliminate the disease.

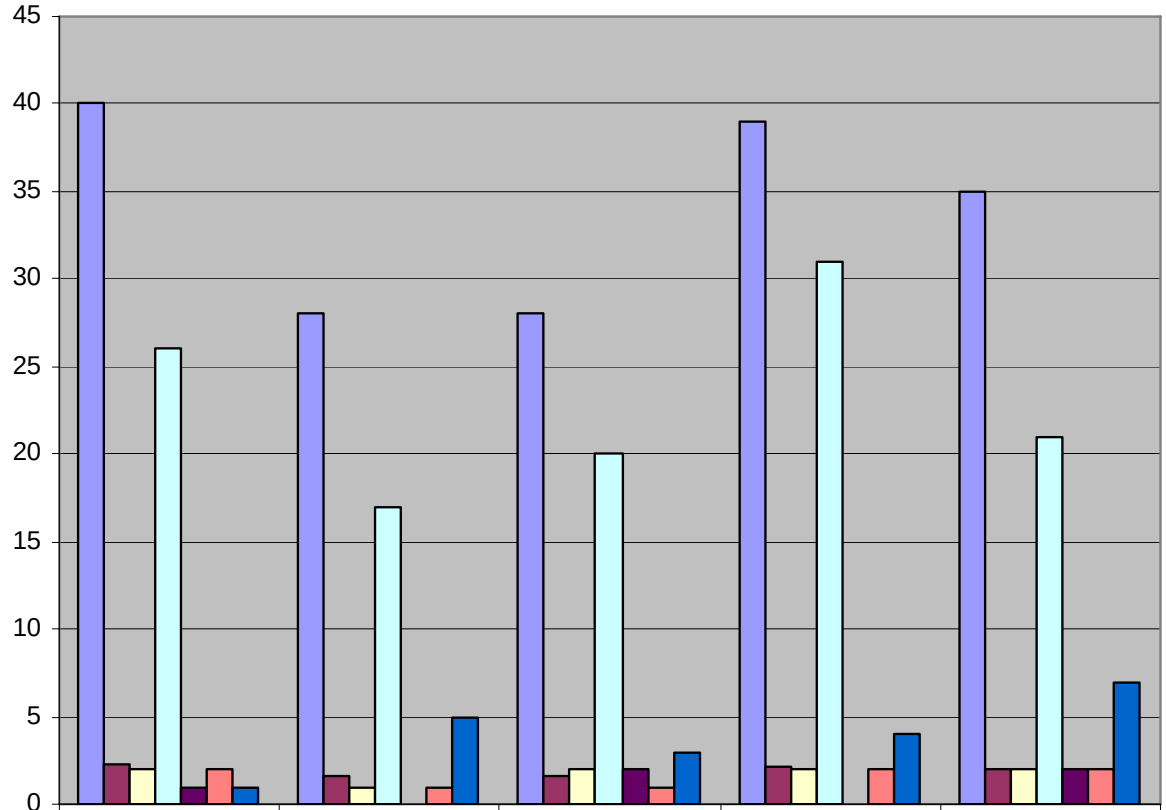
Tuberculosis in Nebraska: 2005 State Wide Summary

Starting in 2003, Nebraska started counting cases that were clinically diagnosed. This has caused a small increase in the numbers of cases reported each year. In 2005, Nebraska had a total of 35 cases of TB, at a rate of 2.0 cases per 100,000 people. This represents the third largest number of cases in Nebraska in the last five years. In 2004, Nebraska had a total of 39 cases of TB, at a rate of 2.2 cases per 100,000 people and ranked 34th in the nation. 2005 national surveillance data is not yet available.

Tuberculosis by Risk Factors

Of the 35 cases of TB in 2005, two were homeless, 21 were foreign born, seven were resistant to one or more treatment drugs (there was no Isoniazid and Rifampin resistance in this group). There were two cases related to institutions; both cases were in correctional facilities and both cases had extra-pulmonary disease. Two patients had HIV co-infection.

Tuberculosis in Nebraska 2001-2005 by Case Rate and Risk Factor

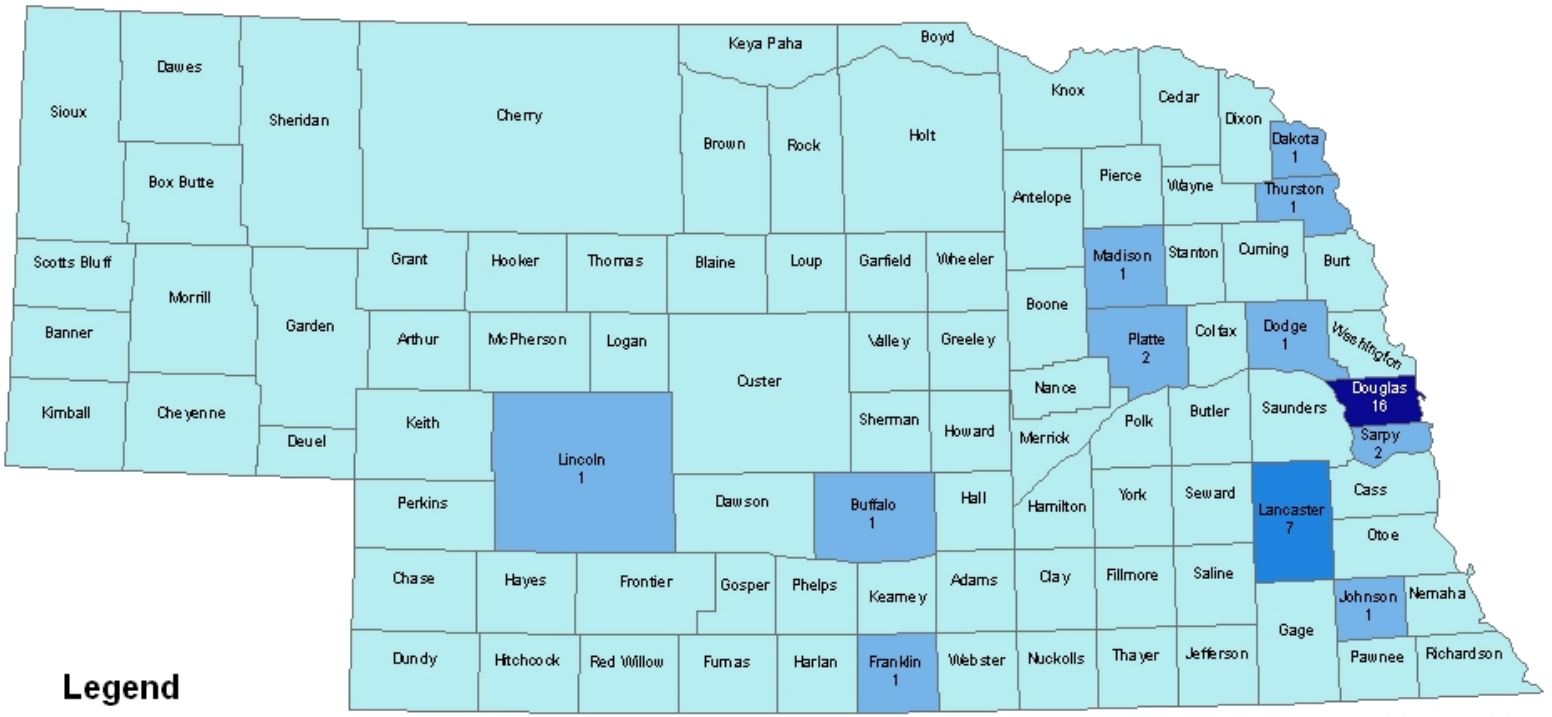


	2001	2002	2003	2004	2005
Reported cases	40	28	28	39	35
Statew ide Rate/100,000	2.3	1.6	1.6	2.2	2.0
Homeless	2	1	2	2	2
Foreign Born	26	17	20	31	21
Related to institutions	1	0	2	0	2
HIV +	2	1	1	2	2
Resistant to > 1 drug	1	5	3	4	7

Tuberculosis in Nebraska 2005 by County

Twelve of Nebraska's 93 counties reported cases of active TB in 2005. For the period of 2001-2005, 25 counties reported at least one case of tuberculosis. Seven counties, reporting five or more cases, accounted for 142 of the 170 cases (84%) that occurred from 2001 through 2005. Douglas (Omaha), Sarpy (included in the Omaha metro area) and Lancaster are the state's three most populous counties. Together they reported 113 cases or 66% of the cases during the 2001-2005 period.

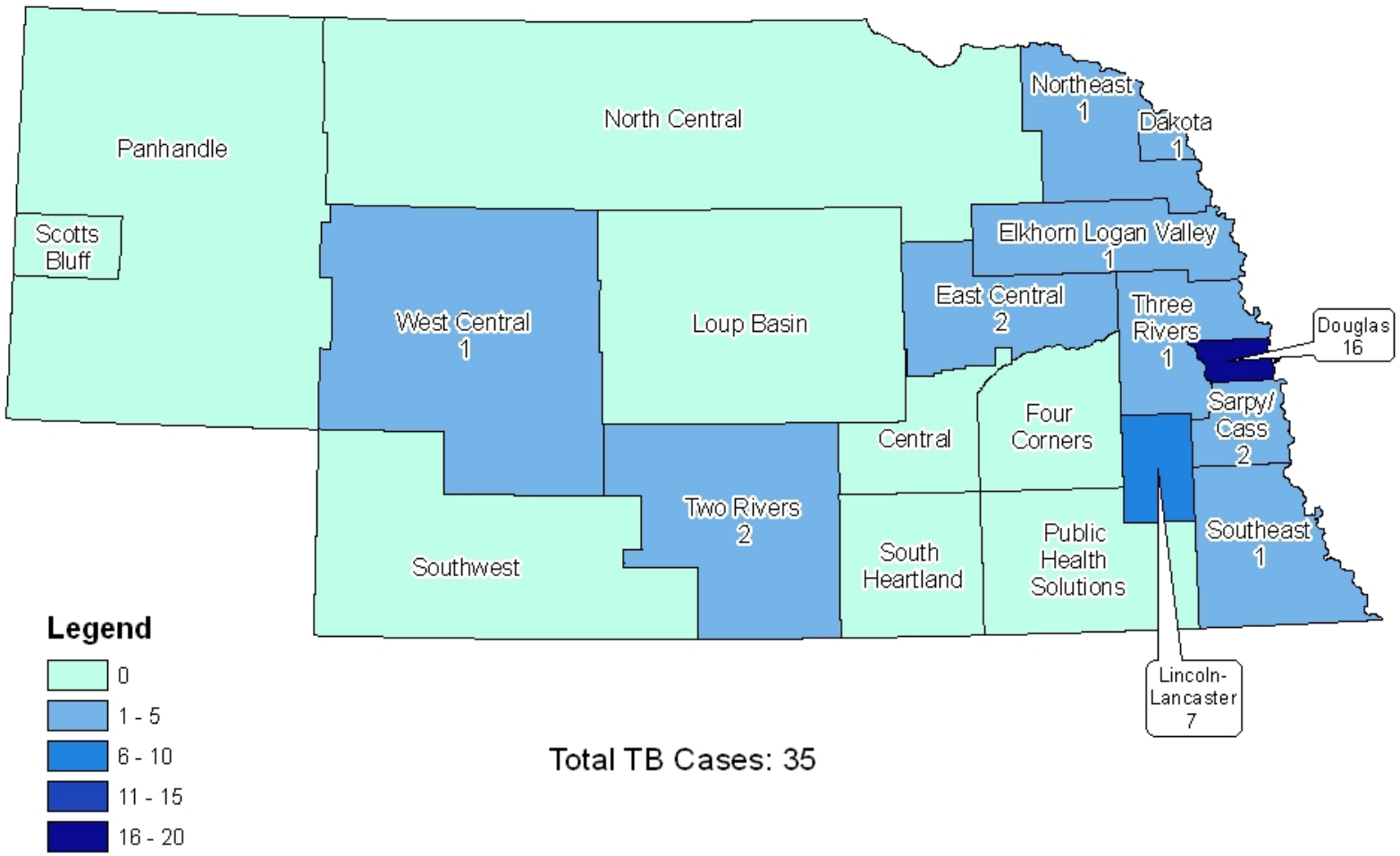
Tuberculosis Cases by County, 2005



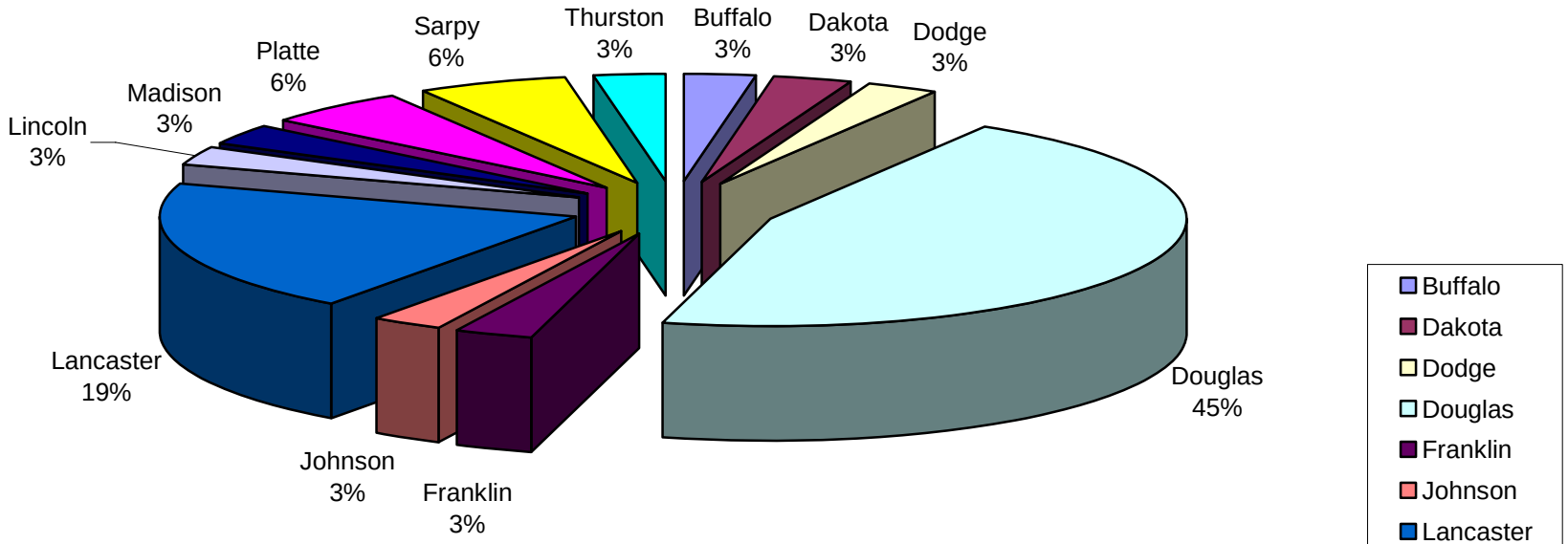
Total TB Cases: 35

Source: Nebraska Health and Human Services System

Tuberculosis Cases by Local Health Department, 2005



Tuberculosis in Nebraska by County 2005



Source: Nebraska HHS Department of Regulation & Licensure,

TB Control Program, 1/2006 bh

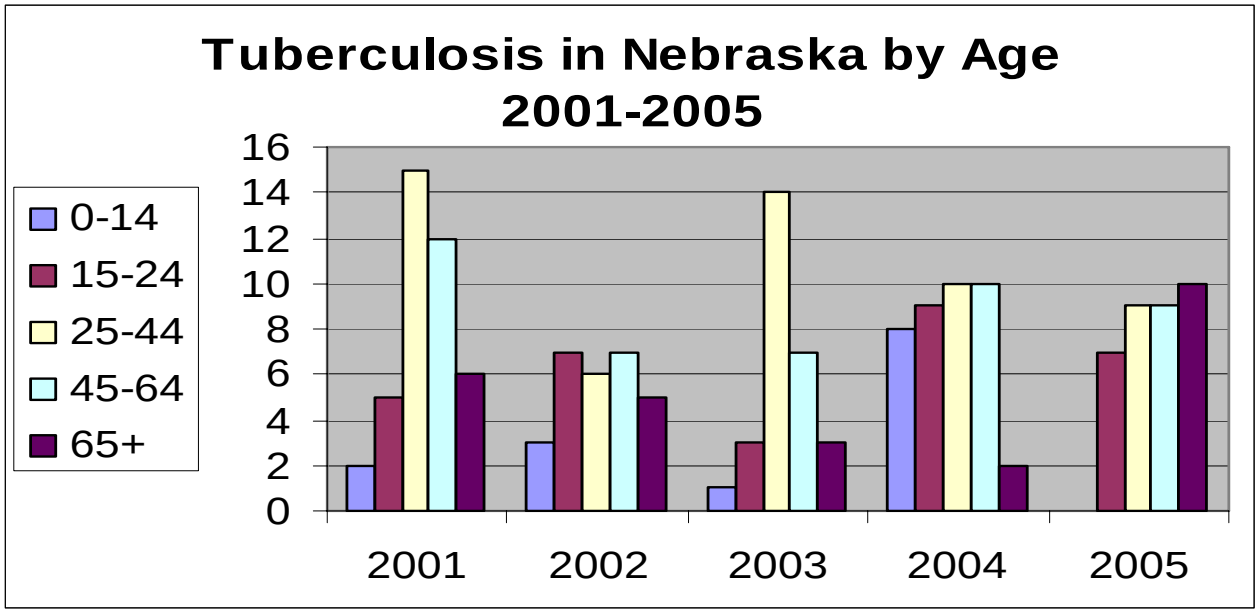
Tuberculosis in Nebraska by County – 2001-2005

COUNTY	2001	2002	2003	2004	2005	5 YEAR TOTAL
Adams	1					1
Antelope	1					1
Buffalo				1	1	2
Colfax				2		2
Dakota		1	3		1	5
Dawson			1			1
Dodge		1		2	1	4
Douglas	18	16	12	17	16	79
Franklin					1	1
Hall	4	2	3	3	0	12
Johnson					1	1
Knox		1				1
Lancaster	6	3	3	8	7	27
Lincoln				1	1	2
Madison	1	2		3	1	7
Platte	2				2	4
Polk			1			1
Saline			1			1
Sarpy	3			2	2	7
Scottsbluff			2			2
Sheridan		1				1
Thayer			1			1
Thurston	4				1	5
Webster		1				1
York			1			1
TOTAL	40	28	28	39	35	170

Source: Nebraska HHS Department of Regulation & Licensure,
TB Control Program
1/2006 bh

Tuberculosis in Nebraska 2005 by Age Group

The number of cases of Tuberculosis in Nebraska from 2001-2005, by age group, are represented in the following table.



Source: Nebraska HHS Department of Regulation & Licensure,
TB Control Program, 1/2006 bh

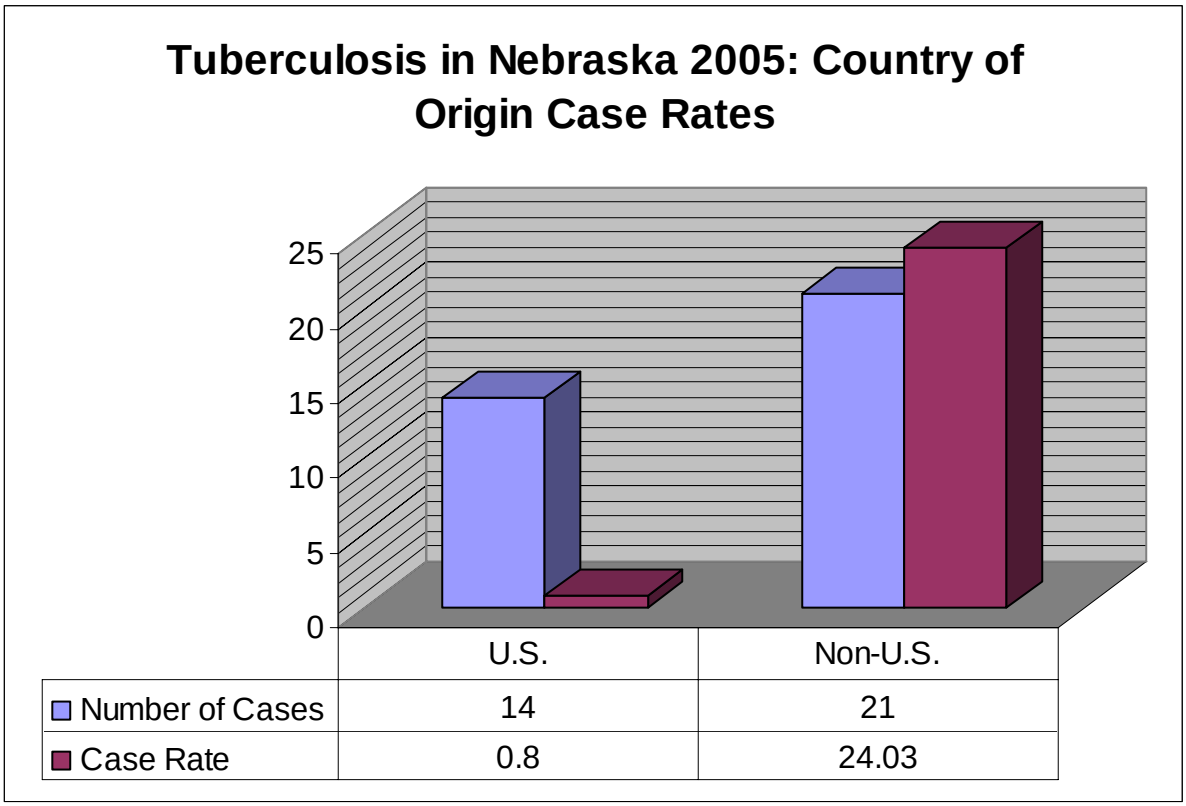
In 2005, sixty-five year olds had the highest incidence. Children (0-14 years old) were the lowest incidence group with no cases reported. This was the first time since 2001 that there were no children with active TB reported in Nebraska.

Tuberculosis in Nebraska 2005 by Country of Origin

Foreign born persons are at higher risk for exposure to or infection with *M. tuberculosis*; especially those who come from areas that have a high TB incidence such as Asia, Africa, Latin America, Eastern Europe and Russia. Many of these groups now reside in Nebraska

In 2005 the total number of U.S. born cases in Nebraska was 14, and the total number of foreign born was 21. According to the United States Census Bureau, Nebraska's population consists of approximately 95% U.S. born and approximately 5% foreign born. The number of

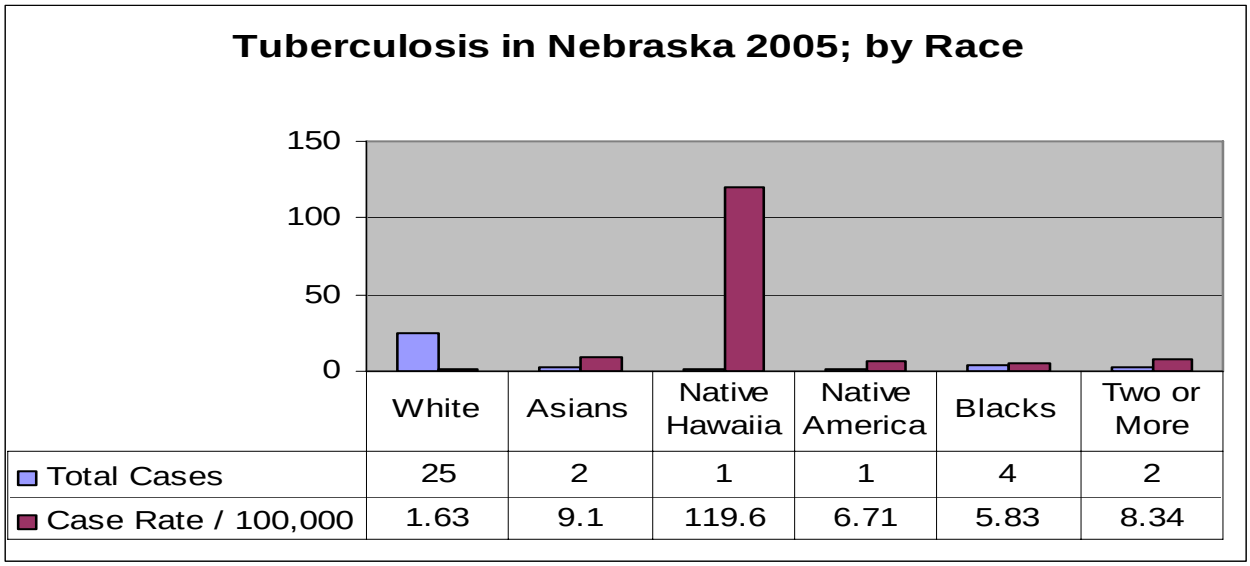
foreign born cases compared to the population yields a case rate of approximately 24.03/100,000 foreign born people, and .8/100,000 U.S born people.



Source: Nebraska HHS Department of Regulation & Licensure,
TB Control Program, 1/2006 bh

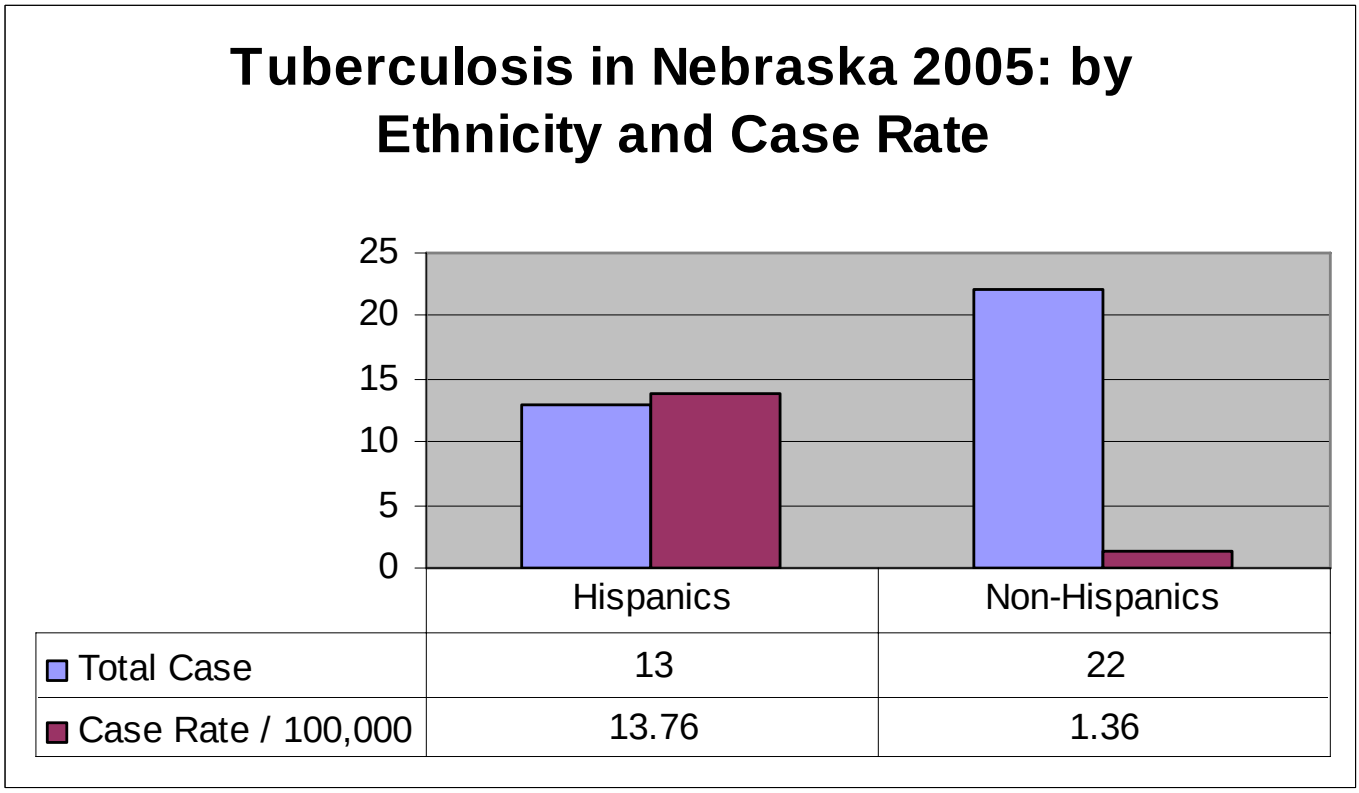
Tuberculosis in Nebraska 2005 by Race & Ethnicity

In Nebraska, the largest numbers of cases are reported in the white population; however, other racial populations have a significantly higher case rate. The cases shown by race are shown in the table below.



Source: Nebraska HHS Department of Regulation & Licensure,
TB Control Program, 1/2006 bh

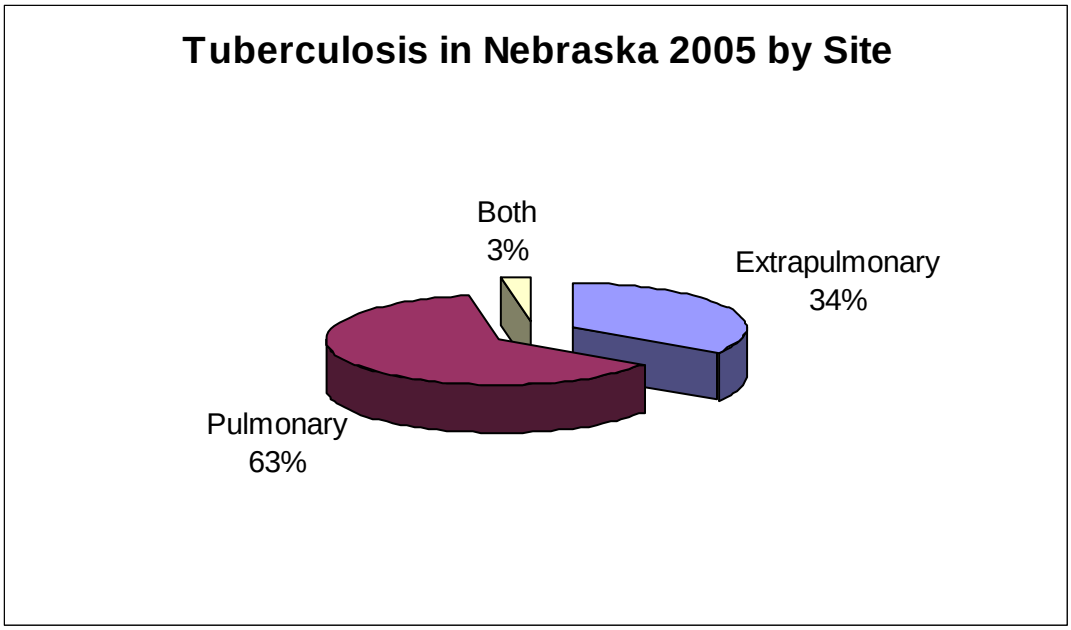
Based on information from the U.S. Census Bureau, Nebraska's population is 82% Non-Hispanic. In 2005, 13 reported cases were Hispanic, and 22 reported cases were Non-Hispanic for a case rate of 13.76/100,000 for Hispanics and 1.36/100,000 for Non-Hispanics.



Source: Nebraska HHS Department of Regulation & Licensure,
TB Control Program, 1/2006 bh

Tuberculosis in Nebraska 2005 by Site of Disease

Of the 35 cases of Tuberculosis reported in 2005, 12 or 34% had extra-pulmonary disease, 22 or 63%, had pulmonary disease, and one or 3% had both pulmonary and extra-pulmonary disease.



Source: Nebraska HHS Department of Regulation & Licensure,
TB Control Program, 1/2006 bh

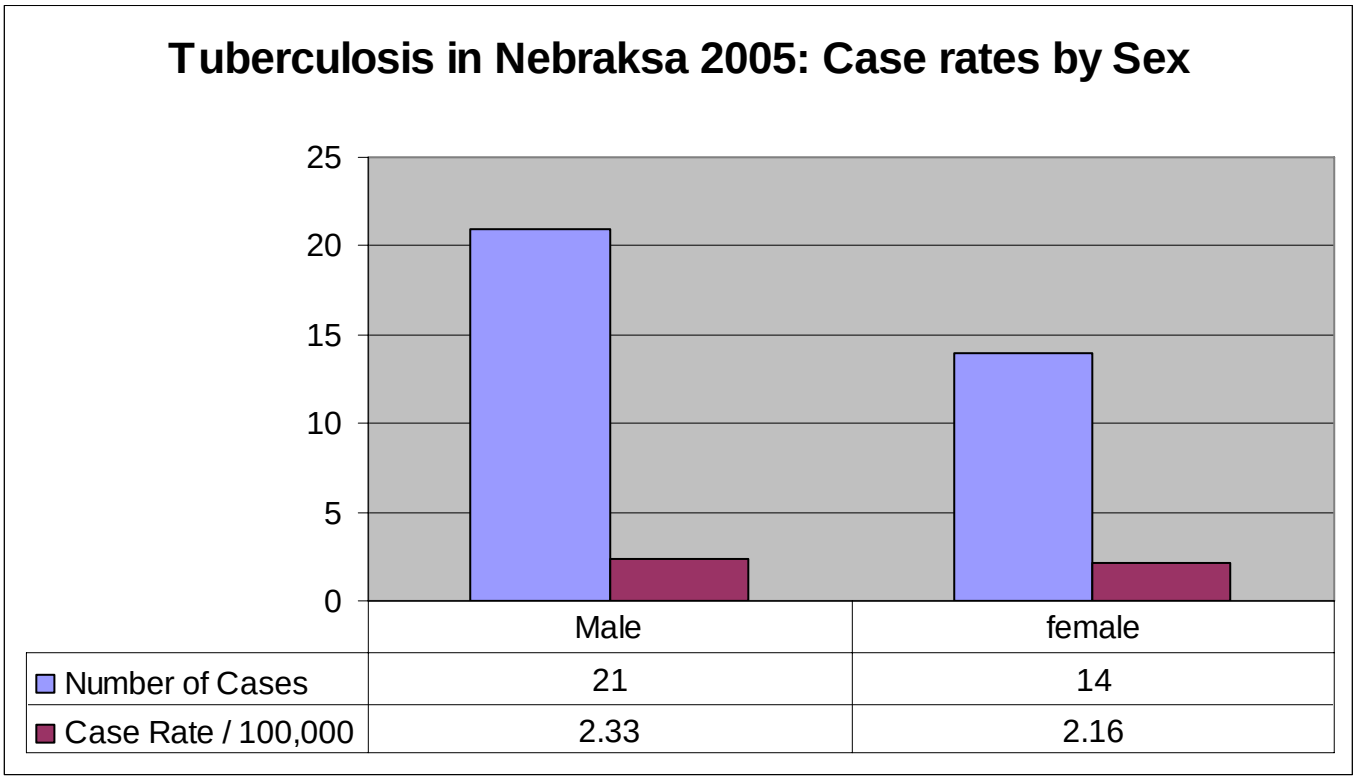
Tuberculosis in Nebraska 2005 by Verified Cases

Nebraska continues to use CDC's guidelines for both clinical and laboratory confirmed cases. This surveillance method started in 2003. Two of the thirty-five cases in 2005 were clinically diagnosed; the rest were laboratory confirmed with positive cultures for M. Tuberculosis. It should be noted that even though the Tuberculosis burden in the State is low, many more cases are investigated as Tuberculosis suspects. An example of this is Douglas County, which investigated 67 possible Tuberculosis cases in 2005.

Tuberculosis in Nebraska 2005 by Sex

In 2005 the number of male cases was 21 and the number of female cases was 14. According to the U.S. Census Bureau, in Nebraska, males represent approximately 49% of the

population and females represent approximately 51% of the population. The case rate of males in 2005 was 2.33/100,000, and the case rate for females in 2005 was 2.16/100,000.

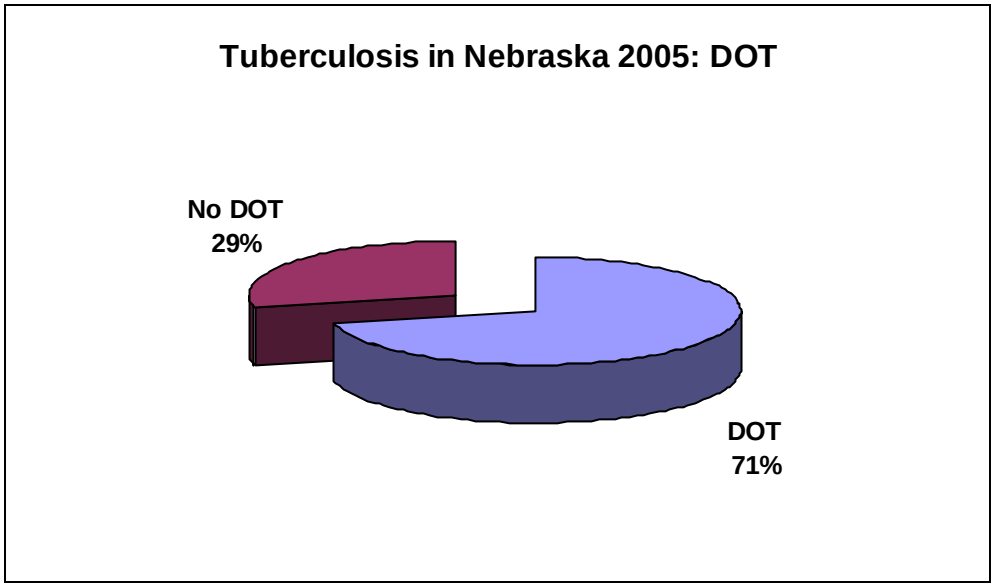


Source: Nebraska HHS Department of Regulation & Licensure,
TB Control Program, 1/2006 bh

DOT & Tuberculosis

A major factor in determining the outcome of treatment is patient adherence to the drug regimen. Careful attention is paid to measures designed to foster adherence. These measures include something as simple as asking the patient about adherence to doing pill counts on follow-up visits. Directly observed therapy (DOT), which is having someone observe the patient taking their medication, is also used. When DOT is used, medications may be given intermittently which often is more convenient for the patient.

In 2005, 25 of the 35 (71%) cases of Tuberculosis received DOT to ensure completion of therapy by the patient. The progress of each case is monitored by a Local Health Department until the completion of treatment is achieved. DOT for pulmonary TB cases is becoming the standard of care in Nebraska.



Source: Nebraska HHS Department of Regulation & Licensure,
TB Control Program, 1/2006 bh

Tuberculosis Program in Nebraska: Updates and Progress Report

The Tuberculosis Program provides guidance and technical assistance to tuberculosis efforts throughout the State. The Program maintains disease surveillance records and provides services to individuals with tuberculosis disease or infection. The services provided are: laboratory services for microbiology, medications used for the treatment of TB or Latent TB Infection (LTBI), contracts with local health departments to provide DOT when ordered, contact investigation, x-ray fees, and medical office visit payments for cases and contacts of infectious cases when there is no other source of payment. TB education and training for nurses, physicians and laypersons is provided upon request.

A new system to provide LTBI therapy across the State was implemented in March of 2005. Medications are now mailed directly to physicians from the TB Program upon the physician's request. A preliminary evaluation of this new program has just been completed. For this evaluation, the twelve months of March 2004 to February 2005 were used to establish the completion rates and costs of service prior to the implementation of the new system. Due to the time needed to complete treatment, only the first five months of March 2005 to July 2005 were evaluated for completion rates and costs with the new system. An additional benefit, not seen in the evaluation, is an increased awareness of the TB Program and the services it provides.

The table below shows the comparison of the number of clients, costs of treatment and both 6 and 9 month completion rates. (Current CDC guidelines recommend either a 6 or 9 month course of therapy for treatment latent tuberculosis infection).

Nebraska Latent Tuberculosis Infection Medication Distribution System
Preliminary Evaluation –
Clients Enrolled in Old Program, March 1, 2004 through February 28, 2005
and Clients Enrolled in New Program, March 1, 2005 through July 31,2005

	Number of Clients	**Total Costs of INH**	**Costs per Client Enrolled**	**6 Month Completion Rate**	**6 Month Completion Costs**	**9 Month Completion Rate**	**9 Month Completion Costs**
March 2004-Feb. 2005	**546**	**$17,629.42**	**$32.29**	**28%**	**$53.52**	**8.3%**	**$80.28**
March 2005-July 2005	**280**	**$2,471.04**	**$9.88**	**46%**	**$11.88**	**17.3%**	**$17.82**

Note: *All data completion rates as of June 30, 2006*
Source: Nebraska HHSS, Regulation & Licensure, Tuberculosis Program 2006

There was a 70% decrease in costs per enrolled client whereas the completion rates increased by 64% for 6 month completion and 108% for 9 month completion. A complete evaluation will be done by March 2007.

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